

Applicant : Kamel Ayadi
Serial No. : 10/032,876
Filed : October 24, 2001
Page : 2 of 15

Attorney's Docket No.: 13292-003001 / 200111518

AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A system, comprising:
a ~~graphical user interface (GUI) connected to an input/output device of a computer system, the input/output device providing a graphical user interface (GUI);~~
one or more test instruments ~~for producing a set of electrical signals;~~
a probe card having a ~~plurality of~~ probe needles used for measuring electronic characteristics of ~~each of a plurality of~~ devices on a semiconductor wafer, each device having a ~~plurality of~~ cells, each cell having ~~a set of~~ bond pads, the bond pads being spaced apart by a multiple of a first distance and a multiple of a second distance;
a memory to store a predefined set of values for the first distance and for the second distance, each predefined value corresponding to a temperature;
a matrix switch; and
an interface conduit electrically connecting the one or more test instruments, the computer system, the probe card, and the matrix switch ~~together~~, the semiconductor wafer being configured to move ~~moving~~ so that the probe needles measure the electrical characteristics of

each cell for each device selected for testing based on a predefined value for the first distance and a predefined value for the second distance, each predefined value corresponding to a testing temperature.

2. (Original) The system of claim 1 wherein a user selects a test configuration by interfacing the matrix switch through the GUI.

3. (Currently Amended) The system of claim 2 wherein the user selects either an automatic test mode or a manual test mode of the semiconductor wafer, the automatic test ~~modes~~ mode allows the user to select devices for testing.

4. (Original) The system of claim 3 wherein the manual test mode includes the user setting the electrical signals of the test instruments through the GUI.

5. (Currently Amended) The system of claim 4 wherein the probe card transmits ~~a set of~~ electrical signals from each test instrument through the probe needles to the ~~each set of~~ bond pads and generating a test result for each device that is displayed graphically on the display.

6. (Original) The system of claim 5 wherein the test instruments include:
a pulse generator; and
a parametric analyzer.

Attorney's Docket No.: 13292-003001 / 200111518

Applicant : Kamel Ayadi
Serial No. : 10/032,876
Filed : October 24, 2001
Page : 4 of 15

7. (Original) The system of claim 1 wherein the testing includes measuring a silicon band gap voltage.

8. (Original) The system of claim 1 wherein the testing includes measuring a capacitance.

Applicant : Kamel Ayadi
Serial No. : 10/032,876
Filed : October 24, 2001
Page : 5 of 15

Attorney's Docket No.: 13292-003001 / 200111518

9. (Currently Amended) A method, comprising:
- selecting a test configuration through a graphical user interface (GUI) connected to an input/output (I/O) device of a computer;
- selecting a temperature for testing; and
- measuring ~~a set of~~ electrical characteristics of each ~~of a plurality of devices~~ device on a semiconductor wafer selected for testing, the probe card having ~~a plurality of~~ probe needles, each device having ~~a plurality of~~ cells, each cell having ~~a set of~~ bond pads, each bond pad being separated by a multiple of a first distance and a multiple of a second distance;
- selecting a predefined value for the first distance and a predefined value for the second distance from a set of predefined values based on the temperature, each predefined value corresponding to a temperature;
- using the predefined value for the first distance and the predefined value for the second distance to move the semiconductor wafer ~~moving~~ so that the probe needles measure the electrical characteristics of each cell for each device selected for testing.
10. (Currently Amended) The method of claim 9, further comprising sending a signal to activate ~~a plurality of~~ test instruments.
11. (Currently Amended) The method of claim 10, further comprising determining if the ~~plurality of~~ test instruments are electrically connected.

Attorney's Docket No.: 13292-003001 / 200111518

Applicant : Kamel Ayadi
Serial No. : 10/032,876
Filed : October 24, 2001
Page : 6 of 15

12. (Original) The method of claim 11, further comprising designating if testing is an automatic test mode or a manual test mode, the automatic test mode includes selecting devices on a semiconductor wafer for testing, the manual test mode includes the user setting the electrical signals of the test instruments through the GUI.

13. (Currently Amended) The method of claim 12, further comprising generating an output file for all devices tested.

14. (Original) The method of claim 13, further comprising graphing data in the output file on a display.

15. (Currently Amended) The method of claim 14 wherein the ~~plurality of~~ test instruments include:

- a pulse generator; and
- a parametric analyzer.

16. (Original) The method of claim 1 wherein the testing includes measuring a silicon band gap voltage.

17. (Original) The method of claim 1 wherein the testing includes measuring a capacitance.

Applicant: Kamel Ayadi
Serial No.: 10/032,876
Filed: October 24, 2001
Page: 7 of 15

Attorney's Docket No.: 13292-003001 / 200111518

18. (Currently Amended) An apparatus for testing devices on a semiconductor wafer using a graphical interface (GUI) comprising:
- a memory that stores executable instructions; and
 - a processor that executes the instructions to:
 - select a test configuration using the GUI;
 - select a predefined value for a first distance and a predefined value for a second distance from a set of predefined values based on a temperature selected for testing, each predefined value corresponding to a temperature; and
 - measure ~~a set of~~ electrical characteristics of each device selected for testing, the probe card having ~~a plurality of~~ probe needles, each device having ~~a plurality of~~ cells, each cell having ~~a set of~~ bond pads; and
 - use the predefined value for the first distance and the predefined value for the second distance to move the semiconductor wafer ~~moving~~ so that the probe needles measure the electrical characteristics of each cell for each device selected for testing.
19. (Currently Amended) The apparatus of claim 18, further comprising instructions that cause the machine to send a signal to activate ~~a plurality of~~ test instruments.
20. (Currently Amended) The apparatus of claim 19, further comprising instructions that cause the machine to determine if the ~~plurality of~~ test instruments are electrically connected.

Applicant : Kamel Ayadi
Serial No. : 10/032,876
Filed : October 24, 2001
Page : 8 of 15

Attorney's Docket No.: 13292-003001 / 200111518

21. (Original) The apparatus of claim 20, further comprising instructions that cause the machine to designate if testing is an automatic test mode or a manual test mode, the automatic test includes selecting devices on a semiconductor wafer for testing, the manual test mode includes the user setting the electrical signals of the test instruments through the GUI.

22. (Original) The apparatus of claim 21, further comprising instructions that cause the machine to:

generate data in an output file for all devices tested; and
graph data in the output file on a display.

23. (Original) The apparatus of claim 18 wherein the testing includes measuring a silicon band gap voltage.

24. (Original) The apparatus of claim 18 wherein the testing includes measuring a capacitance.

25. (Currently Amended) An article comprising a machine-readable medium that stores executable instructions for testing devices on a semiconductor wafer, the instructions causing a machine to:

select a test configuration using a graphical user interface (GUI);

Applicant : Kamel Ayadi
Serial No. : 10/032,876
Filed : October 24, 2001
Page : 9 of 15

Attorney's Docket No.: 13292-003001 / 200111518

select a predefined value for a first distance and a predefined value for a second distance from a set of predefined values based on a temperature selected for testing, each predefined value corresponding to a temperature; and

measure a set of electrical characteristics of each device selected for testing, the probe card having a plurality of probe needles, each device having a plurality of cells, each cell having a set of bond pads; and

use the predefined value for the first distance and the predefined value for the second distance to move the semiconductor wafer moving so that the probe needles measure the electrical characteristics of each cell for each device selected for testing.

26. (Currently Amended) The article of claim 25, further comprising instructions that cause the machine to send a signal to activate a plurality of test instruments.

27. Currently Amended) The article of claim 26, further comprising instructions that cause the machine to determine if the plurality of test instruments are electrically connected.

28. (Original) The article of claim 27, further comprising instructions that cause the machine to designate if testing is an automatic test mode or a manual test mode, the automatic test mode includes selecting devices on a semiconductor wafer for testing, the manual test mode includes the user setting the electrical signals of the test instruments through the GUI.

Applicant : Kamel Ayadi
Serial No. : 10/032,876
Filed : October 24, 2003
Page : 10 of 15

Attorney's Docket No.: 13292-003001 / 200111518

29. (Original) The article of claim 28, further comprising instructions that cause the machine to:

generate data in an output file for all devices tested; and
graph data in the output file on a display.

30. (Currently Amended) The article of claim 29 wherein the plurality of test instruments include:

a pulse generator; and
a parametric analyzer.

31. (Original) The article of claim 25 wherein the testing includes measuring a silicon band gap voltage.

32. (Original) The article of claim 25 wherein the testing includes measuring a capacitance.